MALAYAN COLLEGES MINDANAO (A MAPUA SCHOOL)
Gen. MacArthur Highway, Matina, Davao City

EE 101L
CIRCUITS 1 (LABORATORY)

Experiment No. 5

DELTA - WYE TRANSFORMATION AND WHEATSTONE BRIDGE

Name: Rene Marlon S. Castigador II
Section: A261
Date Performed: July 18, 2019
Date Submitted: August 1, 2019
Group No.: 2

Engr. Michael G. Calamba, MEP-ECE
Instructor, EE101L
Experiment No. 5: Delta - Wye transformation and Wheatstone Bridge

I. Learning Outcomes

1. To become familiar with delta to wye conversions and its usefulness in circuit analysis.
2. To understand the behaviour of the Wheatstone bridge
3. To measure resistors using the Wheatstone bridge.

II. Data Sheet and Computations (attach after this page)

III. Guide Questions

IV. Analysis

For the Delta to Wye transformation itself, without it being on a circuit itself, the data is quite similar. The data from the Delta load are 3.29 kΩ, 3.04 kΩ, and 2.46 kΩ for the measured values. The data from the Wye load are 3.29 kΩ, 3.11 kΩ, and 2.5 kΩ. The values are almost completely similar and supports the fact that you can simply transform them and they retain the same total value despite the changes in resistance. For the Delta to Wye and vice versa transformation on a circuit with other resistors is quite different on the data we collected. The R total for the delta with the 2kΩ and the 1kΩ resistor is 5.45 kΩ. The R total for the Wye, still with the 2kΩ and the 1Ω resistor, is 0.96kΩ. Both values are close to its calculated value thus it would mean that it didn't support the fact that Delta and Wye are simply interchangable. For the Wheatstone, changing the resistor affects the value of the Rx resistor. Although through the entire experiment, our resistor remained in the same value althroughout. Changing the voltmeter, however, had no effect on the value of the Rx.

V. Conclusions

I can conclude, although not entirely with the data present, that Delta - Wye transformation have the same R total regardless and can help in difficult schematics. Possible reasons why the data is not reflecting the theory could be the incorrectly built schematics and misunderstandings on certain areas, especially with how the circuit was measured in the wheatstone bridge experiment. The first simple experiment alone, although not as much, help us give a basic proof that indeed they are usefully interchangeable.